[illegible]

A

Arteriolar Diameter (relative to baseline)

Systemic Hematocrit (relative to baseline)

B

Venular Diameter (relative to baseline)

Systemic Hematocrit (relative to baseline)

Systemic Hematocrit (relative to baseline)	Arteriolar Diameter (relative to baseline)	Venular Diameter (relative to baseline)
0.25	0.98 ± 0.15	0.88 ± 0.12
0.35	1.18 ± 0.25	1.02 ± 0.18
0.55	1.00 ± 0.18	0.98 ± 0.15

Fig. 2. Vascular tone vs. systemic hematocrit. Data are presented as means \pm SD. \bullet , Dextran 70 exchange; \blacktriangledown , Dextran 500 exchange. Broken line represents baseline level. * $P < 0.05$. Baseline diameters (μ m) in each animal group were as follows: level 1 (arterioles (A): 62.4 ± 18.2 , $n = 44$, venules (V): 68.8 ± 37.5 , $n = 42$); level 2 (A: 57.9 ± 17.8 , $n = 46$, V: 70.9 ± 39.2 , $n = 36$); level 3 LV (A: 58.6 ± 12.3 , $n = 49$, V: 78.5 ± 23.9 , $n = 37$); level 3 HV (A: 57.4 ± 15.3 , $n = 47$, V: 68.9 ± 32.7 , $n = 38$). n , No. of vessels studied.

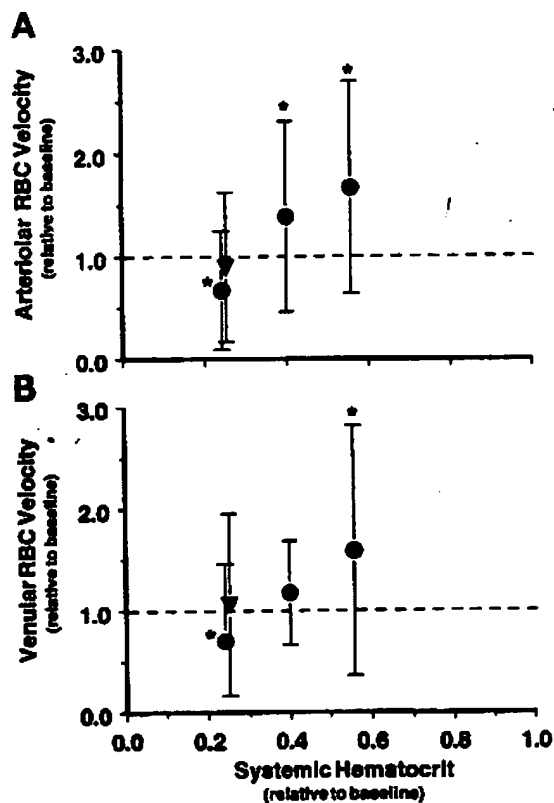


Fig. 3. Arteriolar and venular red blood cell (RBC) velocity vs. systemic hematocrit. Initial increase in arteriolar RBC velocity was followed by a return to baseline with HV protocol, whereas LV protocol led to a reduced RBC velocity. Similar pattern was observed in venular RBC velocity except the return to baseline levels was earlier, occurring after the second exchange. Data are presented as means \pm SD. ●, Dextran 70 exchange; ▼, Dextran 500 exchange. Broken line represents baseline level. * $P < 0.05$. Baseline RBC velocities (mm/s) in each animal group were as follows: control (A: 4.9 ± 3.8 , V: 1.0 ± 0.7); level 1 (A: 4.3 ± 2.4 , V: 1.2 ± 0.8); level 2 (A: 4.5 ± 2.5 , V: 1.2 ± 1.4); level 3 LV (A: 4.0 ± 2.3 , V: 1.0 ± 0.8); level 3 HV (A: 4.1 ± 2.7 , V: 1.1 ± 0.9).

A

Arterial Blood Flow
(relative to baseline)

B

Venular Blood Flow
(relative to baseline)

Systemic Hematocrit
(relative to baseline)

Systemic Hematocrit (relative to baseline)	Arterial Blood Flow (relative to baseline)	Venular Blood Flow (relative to baseline)
0.2	0.75*	0.65*
0.3	1.60	1.05
0.4	1.90*	1.20*
0.55	1.70*	1.50*

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Figure 5

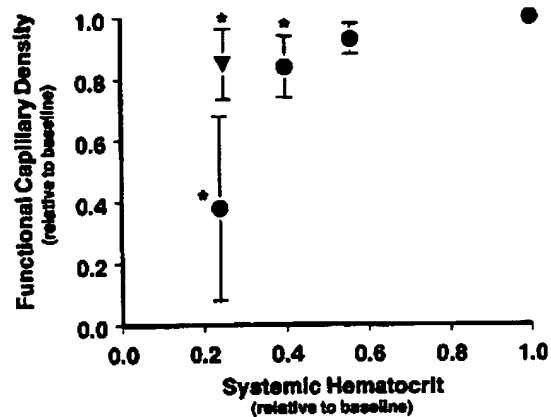


Fig. 5. Effect of hemodilution on capillary perfusion. Functional capillary density (FCD) was unchanged after level 1 exchange. Drop in FCD was greater after level 3 LV than level 3 HV exchange. Data points are means \pm SD relative to baseline. ●, Dextran 70 exchange; ▼, Dextran 500 exchange. * $P < 0.05$. Baseline FCD (cm^{-1}) in each experimental group was as follows: level 1 (105.8 ± 22.1); level 2 (121.2 ± 20.9); level 3 LV (109.2 ± 22.2); level 3 HV (107.8 ± 22.3).

Fig. 6. Distribution of microvascular PO_2 vs. hemodilution level. A, arterioles; V, venules; T, tissue. Shift in arteriolar PO_2 to the right and venular PO_2 shift to the left after level 1 and 2 exchange maintained tissue oxygenation at baseline levels. Level 3, extreme hemodilution, resulted in significant reduction across all categories. Both level 3 LV and level 3 HV caused a significant reduction in PO_2 in all categories. PO_2 measurements could only be made in vessels that had blood flow; thus the histograms for level 3 LV do not include data from 2 animals that did not have blood flow in the tissue under study. Control group vessel diameters (means \pm SD, μm) were A: 57.0 ± 18.5 ($n = 58$), V: 69.9 ± 35.3 ($n = 56$), and RBC velocities (mm/s) were A: 4.9 ± 3.8 ($n = 58$), V: 1.0 ± 0.7 ($n = 56$). n, No. of vessels studied.

